The Rocket Blog

A blog about anything related to rockets and space technology from news to how to make your own propellant.

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How to make potassium chlorate - An another way

Making potassium perchlorate could be done by electrolysis of sodium chloride through the chlorate, and finally the double decomposition with potassium chloride, but here I will show you an another way for making potassium chlorate using household bleach.

All you will need is household bleach, potassium chloride and a big container.

First, pour at least a liter of household bleach in the container.
Then boil it for at least 15 minutes.
Finally, add potassium chloride until there is no more potassium chlorate precipitating out of the solution.
Filter to gather the potassium chlorate and let it dry.

Here is what's going on. Household bleach is a solution of sodium hypochlorite (NaClO) and heating leads to decomposition in sodium chlorate (NaClO3) and sodium chloride (NaCl).
Now adding potassium chloride (KCl) leads to a double decomposition between NaClO3 and KCl giving potassium chlorate (KClO3) that is a lot less insoluble than NaClO3, thus precipitating out of the solution.

The KClO3 can be used as is after drying or can be put into an electrolysis cell to give potassium perchlorate (KClO4). The solubility of KClO3 and KClO4 are very low so that there will be no separation possible until the end of the electrolysis.
But there is a way around this, you can make a saturated solution of KClO3 and let run the electrolysis until all the KClO4 is precipitated, filter and let dry all the KClO4.
Do again the procedure until you have made the desired amount of KClO4.

This procedure is not suitable for ammonium perchlorate because ammonium chlorate is VERY DANGEROUS AND UNSTABLE SO NEVER PUT ammonium chloride into the boiled bleach.

Unknown at Sunday, August 12, 2012

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Potassium perchlorate is a very common oxidizer in pyrotechnics. Composition based on perchlorates tend to be less sensitive than those based on chlorates, and perchlorates can be used with sulfur and sulfides. For these reasons potassium perchlorate is much preferred above chlorates. For more information visit us https://fireworkscookbook.com

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